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## A regional model for estimating the design storm in Northern-Central Italy

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Several hydrological analyses need to be founded on the design storm, which is the expected rainfall depth corresponding to a given duration and probability of occurrence, usually expressed in terms of return period. The annual series of precipitation maxima for storm durations ranging from 15 minutes to 1 day are obtained for a dense network of raingages sited in Northern-Central Italy and are statistically analyzed using an approach based on L-moments. The study investigates the statistical properties of rainfall extremes and identifies important relations between these statistics and the mean annual precipitation (MAP) [e.g. Alila, JGR, 1999]. The study develops a regional model for estimating the rainfall depth for a given storm duration and recurrence interval in each location of the study region. The reliability of the methodology is assessed through Monte Carlo simulations. The results points out that the design storms estimated by the proposed approach are significantly accurate.